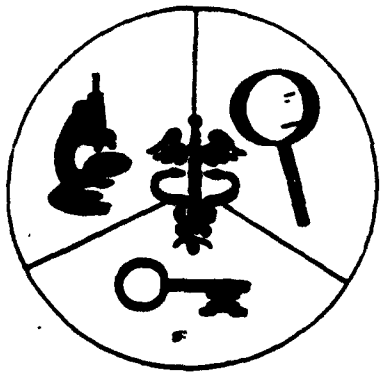


DIRECTORATE OF
HEALTH CARE STUDIES
AND CLINICAL INVESTIGATION

RESEARCH PRIORITIES OF THE U.S. ARMY NURSE CORPS

HR 91-004

July 1993

UNITED STATES ARMY
MEDICAL DEPARTMENT CENTER AND SCHOOL
FORT SAM HOUSTON, TEXAS 78234-6100

Research Priorities of the U.S. Army Nurse Corps

Conducted for the U.S. Army Nurse Corps by:
U.S. Army Health Services Command
U.S. Army Health Care Studies and Clinical Investigation Activity
Health Care Studies Division

Investigators:

Bonnie Mowinski Jennings, LTC, AN
Ruth E. Rea, LTC, AN
John L. Carty, LTC, AN
Karen A. Seipp, LTC, AN

July 1993

NOTICE

The findings in this report are
not to be construed as an official
Department of the Army position
unless so designated by other
authorized documents.

* *

Regular users of services of the Defense Technical Information Center (per DOD Instruction 5200.21) may purchase copies directly from the following:

Defense Technical Information Center (DTIC)
ATTN: DTIC-DDR
Cameron Station
Alexandria, VA 22304-6145

Telephones: DSN 284-7633, 4 or 5
COMMERCIAL (703) 274-7633, 4, or 5

All other requests for these reports will be directed to the following:

U.S. Department of Commerce
National Technical Information Services (NTIS)
5285 Port Royal Road
Springfield, VA 22161

Telephone: COMMERCIAL (703) 487-4650

Unclassified
SECURITY CLASSIFICATION OF THIS PAGE

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1a. REPORT SECURITY CLASSIFICATION Unclassified	1b. RESTRICTIVE MARKINGS
2a. SECURITY CLASSIFICATION AUTHORITY	3. DISTRIBUTION/AVAILABILITY OF REPORT
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE	
4. PERFORMING ORGANIZATION REPORT NUMBER(S)	5. MONITORING ORGANIZATION REPORT NUMBER(S)
6a. NAME OF PERFORMING ORGANIZATION Directorate of Health Care Studies & Clinical Investigation 6b. OFFICE SYMBOL (If applicable) HSHN-H	7a. NAME OF MONITORING ORGANIZATION Assistant Chief, Army Nurse Corps Office of the Army Surgeon General
6c. ADDRESS (City, State, and ZIP Code) Bldg 2268 Fort Sam Houston, TX 78234-6100	7b. ADDRESS (City, State, and ZIP Code)
8a. NAME OF FUNDING/SPONSORING ORGANIZATION 8b. OFFICE SYMBOL (If applicable)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER
8c. ADDRESS (City, State, and ZIP Code)	10. SOURCE OF FUNDING NUMBERS PROGRAM ELEMENT NO. / PROJECT NO. / TASK NO. / WORK UNIT ACCESSION NO.

11. TITLE (Include Security Classification)
(Unclassified) "Research Priorities of the U.S. Army Nurse Corps"

12. PERSONAL AUTHOR(S)
LTC Bonnie M. Jennings, LTC Ruth E. Rea, LTC John L. Carty, LTC Karen A. Seipp

13a. TYPE OF REPORT	13b. TIME COVERED	14. DATE OF REPORT (Year, Month, Day)	15. PAGE COUNT
Final	FROM 1990 TO 1991	1993 July	57

16. SUPPLEMENTARY NOTATION

17 COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)
FIELD	GROUP	SUB-GROUP	Nursing Research; Delphi; Research Priorities

19. ABSTRACT (Continue on reverse if necessary and identify by block number)

.aree round Delphi study was conducted to establish the research priorities of the Army Nurse Corps (ANC). Participants in the study included members of the active and reserve components of the ANC. The findings provided an empirical basis for critical decision-making regarding which research questions needed to be studied. The findings also indicated a widespread interest in research among Army nurses.

20. DISTRIBUTION/AVAILABILITY OF ABSTRACT	21. ABSTRACT SECURITY CLASSIFICATION
☒ UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT. ☐ DTIC USERS	
22a. NAME OF RESPONSIBLE INDIVIDUAL COL Bonnie M. Jennings	22b. TELEPHONE (Include Area Code) (703) 756-0154 22c. OFFICE SYMBOL SGPS-CP-N

DD Form 1473, JUN 86 Previous editions are obsolete. SECURITY CLASSIFICATION OF THIS PAGE
UNCLASSIFIED

INTENTIONALLY LEFT BLANK

SUMMARY

A three round Delphi study was conducted to establish the research priorities of the Army Nurse Corps (ANC). A stratified random sample of Army nurses representing the active component as well as the reserve components (Army Reserve National Guard and U.S. Army Reserves) were invited to participate in the study.

The goal of Round I was to derive nursing research questions that were pertinent to the entire Army health care system. Respondents submitted 1156 individual questions that were eventually collapsed into the 40 study questions used in Rounds II and III. In Round II of the study, respondents rated the importance of each question using a 7-point Likert scale; they also completed a demographic survey. For the third round of the Delphi study, respondents reconsidered their Round II responses for each question in relation to the question's interquartile range derived for the total sample. The priority reflected in the Round III data represented consensus of the sample regarding the importance of each question.

Round III findings were derived for the total sample; the active component, Army Reserve National Guard and U.S. Army Reserve subsets, and each of the Areas of Concentration (i.e., 66A Nurse Administrators, 66H Medical-Surgical Nurses). The findings provided an empirical basis for critical decision-making regarding which research questions needed to be targeted for study. The findings also demonstrated a widespread interest in research among members of the ANC.

ACKNOWLEDGMENTS

We would like to recognize two groups of individuals who were invaluable to the conduct of this study. First, we are grateful to the Army Medical Department Study Board for funding the research. Without their financial support, the investigation would not have been possible. Second, we are indebted to the respondents and the expert panelists who made time in their busy schedules to participate in this study. Their thoughtful responses and concern enabled the study to be completed.

We would also like to extend our appreciation to two specific individuals. LTC Theresa Washburn, Army Nurse Branch Proponent Staff Officer, AMEDD Personnel Proponent Division, Officer Branch, provided invaluable assistance in acquiring the listings of possible study participants. Special gratitude is extended as well to LTC Jane Hudak, Nurse Methods Analyst, U.S. Army Health Care Studies and Clinical Investigation Activity. LTC Hudak assumed responsibility for presenting the study findings to the 1990 Nursing Research and Advisory Board (NRAB). This assured that information regarding the study was conveyed to the NRAB so that they could act upon the findings.

TABLE OF CONTENTS

Table of Contents continued:

LIST OF TABLES

INTRODUCTION

Purpose

The purpose of this study was to establish the research priorities of the Army Nurse Corps (ANC). More specifically, the study was initiated to overcome some of the limitations in former approaches used to identify research topics submitted for funding consideration to the Army Medical Department (AMEDD) Study Board. This study was designed to establish an empirical basis for guiding the ANC's decisions in selecting specific research studies to be forwarded to the AMEDD Study Board.

Background

In the past, ANC officers at each Medical Treatment Facility (MTF) were queried by the Chief, ANC through the Chief, Department of Nursing regarding research ideas that might be submitted to the AMEDD Study Board. These ideas were forwarded from the MTFs to the Nursing Research Service, Walter Reed Army Medical Center (WRAMC). The ANCs assigned to the Nursing Research Service organized the research topics derived from the MTFs and prepared evaluation criteria for reviewing each topic. The research topics and evaluation guidelines were then forwarded to members of the Nursing Research Advisory Board (NRAB). The NRAB is governed by an Office of the Surgeon General (OTSG) regulation. The group is comprised of ANC researchers and other key ANC personnel. The purpose of the NRAB is to advise the Chief, ANC regarding nursing research.

The NRAB members therefore evaluated each proposed research topic to identify those research questions that were appropriate to forward to the AMEDD Study Board. The purpose of the AMEDD Study Board, which is to fund studies that deal with health care systems issues that have the potential to influence the entire AMEDD, guided NRAB decisions.

While the MTFs' response to the request for research ideas was impressive, both in terms of the number of ideas generated as well as their scope, many of the ideas were limited in applicability and thus not suitable for consideration by the AMEDD Study Board. In 1987, only three ideas were submitted to the AMEDD Study Board, and in 1989 there were none. The 1989 NRAB therefore considered ways to identify research topics more appropriate to the AMEDD Study Board while maintaining ANC-wide involvement in the process.

Consequently, it was proposed that a study be conducted to establish the research priorities of the ANC. In so doing, a variety of needs could be met: topics suitable to the AMEDD Study Board could be forwarded to that group, questions appropriate for individual study could be annotated for use by people in long term schooling or by MTF research committees,

ideas appropriate to the soldier in the field could be sent to Medical Research and Development Command (MRDC), and subjects already covered adequately in the literature could be identified. In this way, the members of the ANC might be more satisfied in knowing their research interests were being pursued through a variety of approaches. At the same time, appropriate questions would be sent to the AMEDD Study Board, thus ensuring the ANCs voice in that important forum.

OBJECTIVES

The three objectives of this study were to:

1. Systematically identify the research priorities of the ANC according to responses from informed Army nurse participants.

2. Gain consensus regarding the order of importance of future research priorities of the ANC.

3. Enhance the possibility of obtaining extramural funding for ANC research by substantiating that the topics were derived using an empirical approach.

METHOD

Overview

Various approaches were considered regarding the best way to achieve consensus on the ANC research priorities. Focus groups (Krueger, 1988; Morgan, 1988), nominal group process (Delbecq, Van de Ven, & Gustafson, 1975; Trivedi, 1982), and Delphi survey techniques (Anderson, 1986; Delbecq et al., 1975; Goodman, 1987; Helmer, 1983) were among those considered. After careful analysis, the Delphi method was selected to guide this investigation.

Simplistically stated, the Delphi method is a technique in which a series of questionnaires are mailed to individuals who are knowledgeable of the subject being examined. The series of questionnaires is usually referred to as rounds. Feedback from the previous round of questionnaires is provided to participants with each new round of questionnaires. The multiple iterations are the process through which group consensus is achieved, because the feedback allows the participants to reconsider their opinions in relation to the group perspective.

Advantages of the Delphi technique include gathering information from a large number of participants without the expense of travel and reducing the influence of persuasive or influential individuals on the group opinion. Disadvantages include the challenge of sustaining participants interest and cooperation throughout the various rounds of questionnaires.

The Delphi method has been used by a variety of disciplines to forecast or prioritized needs. The Rand Corporation used this method in the 1950's to forecast positions relative to defense issues. Recent uses have addressed such diverse questions as determining gerontological curriculum (Yancik & Marklan, 1981), forecasting telecommunication needs (Pelton, 1981), noting changes in library roles and functions (Matheson, 1982), predicting day surgery workload (Gabby & Francis, 1988), prioritizing dental health research (Whittle, Grant, Sarll & Worthington, 1987), identifying effective leadership traits (Braddom & Braddom, 1986), and forecasting contemporary health care issues such as cost (Synowiez & Synowiez, 1990).

The Delphi method has been used by nurse researchers since the late 1970s (Bond & Bond, 1982; Lindeman, 1975; McGee, Powell, Broadwell, & Clark, 1987; McGuire, Frank-Stromberg, & Varrichhio, 1985; Ventura & Waligora-Serafin, 1981; Zelauskas, Howes, Christmyer & Dennis, 1988). This technique has been accepted as a scholarly method of establishing research priorities within the subspecialties of the nursing discipline. These include gerontology nursing (Brower & Crist, 1985); oncology nursing (Funkhower & Grant, 1989; Degner et al., 1987); administrative nursing (Henry et al., 1987; Henry, O'Donnell, Pendergast, Moody, & Hutchinson, 1988; Riesch, Fehring, & Schulte, 1987); critical care nursing (Lewandowski & Kositsky, 1983); perioperative nursing (Marchette & Faulconer, 1986); nursing education (Tanner & Lindeman, 1987); veteran patients (Ventura, Waligora-Serafin, & Crosby, 1989); and mental health nursing (Ventura & Waligora-Serafin, 1981).

Consequently, the Delphi method was selected as an appropriate way to identify the research needs of the U.S. Army Nurse Corps. The study protocol was prepared and reviewed by the Army Personnel Survey Division who granted approval and issued a study control number. This review and approval process was required because the survey would involve ANC officers in various commands. The Clinical Investigation Division of the U.S. Army Health Care Studies and Clinical Investigation Activity then reviewed the protocol to ensure that the rights of human subjects were protected. According to Army Regulation 40-38, the study met the criteria to exempt it from further human subjects' review.

Sampling

The population for this study was comprised of both active and reserve component military nurses. The active duty population included all active duty ANC officers in the ranks of captain to colonel who had two or more years experience in Army nursing. The reserve component included U.S. Army Reserve (USAR) and Army Reserve National Guard (ARNG) ANC officers in the ranks of major to colonel who either attended monthly drills or who were filling individual mobilization augmentee (IMA) positions. For both active and reserve components, the rank, experience, and

drill status specifications enhanced the likelihood that the selected study participants would be well-informed about issues relevant to nursing, the Army, and the ANC.

A stratified random sample was used to ensure that individuals in all specialty areas of Army nursing were represented in determining future ANC research priorities. It was important that differences of opinion that could be influenced by duty status or clinical specialty were considered before consensus regarding priorities was reached by the sampled group. Therefore, the above mentioned population was divided into 10 strata. USAR nurses were in one stratum and ARNG members were in another. Active duty nurses were divided into eight strata according to their Areas of Concentration (AOC) as listed in Table 1.

Table 1

Study Strata

STRATUM	NUMBER IN POPULATION
66A: Administration	186
66B: Community Health	135
66C: Psychiatric/Mental Health	110
66D: Pediatric	258
66E: Perioperative	302
66F: Anesthetist	227
66G: Obstetric/Gynecologic	231
66H: Medical/Surgical	1614
US Army Reserve/National Guard	~8100

Note. The numbers in the population reflect the individuals in the stated AOC who also met the other study criteria (e.g., active duty in the rank of captain to colonel; US Army Reserve/Army Reserve National Guard in the rank of major to colonel.

Using systematic sampling techniques, 60 subjects were selected per stratum. The stratum sample size was chosen to enhance the likelihood of having a sufficient total sample based upon an anticipated return rate of 33%. A minimum sample of 20 from each stratum was preferred to allow comparisons across strata. This represented a conservative estimate of respondents

because techniques were used in this study as suggested by Dillman to enhance response rates from mailed questionnaires (Baker, 1985; Crosby, Ventura & Feldman, 1989).

Procedures and Findings

Data were collected in a three round Delphi survey using mailed questionnaires. The approach for each round will be presented individually. The findings from each round will be presented prior to discussing the procedure followed in subsequent rounds.

Round I

Round I commenced on 12 January 1990. Each of the 600 participants was sent a small packet of materials that included a letter requesting participation, a flow diagram of the various rounds and dates for the study, and a one page form for recording responses. Returning the form indicated consent to participate.

The goal of Round I was to derive the research topics and questions that would be evaluated in the next two rounds of the study. Each participant was therefore asked to submit from one to five research questions on the form. To stimulate ideas for the questions, six general categories were placed on the form under which the questions could be listed (see Appendix A). The categories were (a) Administration/Management, (b) Educational, (c) Readiness, (d) Professional, (e) Clinical, and (f) Other.

A follow-up postcard was sent to remind potential respondents to return the questions by the stipulated deadline. As depicted in Table 2, 577 of the original 600 packets were deliverable; 257 of the 577 (44.5%) deliverable packets were completed and returned to the investigators. As anticipated, these response rates exceeded the minimum acceptable return rate.

Preliminary analyses. The 257 Round I respondents submitted a total of 1156 questions, each of which was typed onto an index card. A nurse researcher screened each of these questions to remove confusing or unclear comments, thus eliminating 56 questions. The preliminary screening also revealed inconsistencies among how respondents placed questions among the six categories. By assuring consistency among topics in each category, it was possible to eliminate the category labeled Other. Finally, cards within each of the remaining five categories were first sorted into sets of questions that focused on similar subjects (e.g., assignments, readiness training, and clinical tracts) and then further sorted into smaller sets of those subjects with similar questions. A listing of the subjects within each category can be found at Appendix B.

Table 2

Round I Response Rate by Stratum

STRATUM	NUMBER SENT	NUMBER DELIVERED	NUMBER OF RESPONDENTS	PERCENT RETURNED
66A	60	59	40	68%
66B	60	56	23	41%
66C	60	59	31	53%
66D	60	60	22	37%
66E	60	56	20	36%
66F	60	59	20	34%
66G	60	59	19	32%
66H	60	57	30	53%
USAR/ARNG*	120	112	52	46%
TOTAL	600	577	257	45%

* There were 60 packets sent to USAR nurses and 60 packets sent to ARNG nurses. Of these, 55 were delivered to USAR and 57 were delivered to ARNG members. The number of respondents and percent returned columns reflect combined data for these two groups.

Following this preliminary screening, all questions in each of the five categories were then reviewed and evaluated by at least two nurse researchers using three criteria: (a) could the questions be researched?, (b) were questions that were combined sufficiently similar? and (c) were the study questions clearly stated?

Questions were deemed beyond the scope of research if they were not sufficiently clear to establish the specific purpose of the study or if instruments were not available to measure the concepts addressed in the questions. There were 225 questions evaluated as exceeding the scope of research; these were set aside for review by an expert panel. Through this review, it was noted that 12 questions had been transcribed in duplicate. The 12 duplicate questions and 281 researcher-eliminated questions reduced the number of individual questions from a total of 1156 to a total of 863.

Questions that were appreciably different albeit common in topic were kept as separate concerns; questions with a common focus were combined so that one study question represented the

entire group of cards. Through this process, the 863 individual questions were grouped into 270 study questions. This distribution of questions is depicted in Table 3.

Table 3

Distribution of Questions by Category, Individual Questions, and Study Questions

CATEGORY	INDIVIDUAL QUESTIONS	STUDY QUESTIONS
Administrative/ Management	216	88
Professional	223	68
Educational	171	32
Readiness	160	21
Clinical	93	61
Unusable (all categories)	293	--
TOTAL	1156	--
TOTAL TO PANEL *	863	270

* Under the individual questions column, Total to Panel represents the total minus the unusable questions. Because unusable individual questions were never written as study questions, Total to Panel in the study questions column represents the sum of the column.

Expert panel. A content analysis of the 863 individual questions was conducted in San Antonio by a panel of seven nurse experts representing a broad spectrum of military nursing specialties: administration, community health, pediatrics, anesthesia, maternal/child, medical-surgical, education, critical care, and combat support. Over a two day period, the expert panel evaluated each question according to criteria established by the investigators. Panel decisions were derived by majority agreement.

There were three overriding principles guiding the expert panel's initial analysis. First, they determined if the questions could be researched (i.e., was the question sufficiently clear; were instruments available to measure the concepts addressed in the question). Second, they considered whether the question was currently being explored in a staff study or through a special project group (e.g., the Proud to Care

study) or if sufficient information regarding the topic was available in existing literature or military regulations. Finally, they reviewed the study questions to insure that the individual questions had been combined appropriately.

To facilitate the work of the expert panelists, the 270 study questions, clipped to the appropriate individual question cards, were arranged in ten separate groups. Of these groups, three were comprised of cards culled by the nurse researchers in the preliminary analysis. Two groups were questions believed to be beyond the scope of research and one group was comprised of questions believed to have been addressed in the Proud to Care study. These were reviewed by the panel for consensus with the investigators.

Each of the seven expert panel members rotated among the groups until all questions in each group were reviewed by each panelist. If the questions met the inclusion criteria, the panel's final task was to either accept the study question as written or rewrite it to better reflect the essence of the topic involved.

In the initial analysis, the expert panel eliminated 258 of the 270 study questions. In other words, only 12 study questions remained. The panelists were instructed to reconsider the questions they had eliminated and determine if their decisions remained unchanged. Along with the aforementioned criteria that guided the initial panel analysis, the panel established five additional criteria to guide this secondary review:

1. Does the question have broad relevance to the ANC?
2. Is the answer to the proposed question intuitively obvious, or might it be an assumption of a study?
3. Is the question understandable, rational, and derived from an informed perspective?
4. Is the question realistic in terms of designing a study and using the findings in a meaningful way?
5. Is the question a research issue or a policy issue? (Policy questions were included for those policies the panelists believed to be within the purview of the ANC to change).

Following this secondary evaluation by the expert panel, 40 study questions remained. These 40 study questions represented 290 individual questions.

Round II

The 40 study questions from Round I were used in Round II which began on 30 March 1990. Regardless of whether they had participated, each of the 567 individuals who received Round I materials were sent the Round II questionnaire (Appendix C) and a demographic survey (Appendix D). A follow-up postcard was again mailed to all potential participants to maximize the response rate. The goal of Round II was to derive a preliminary ranking of the research topics according to their order of importance.

Of the 577 mailed questionnaires, 567 were delivered and 352 individuals (62%) responded to Round II.

Of these 352 respondents, 292 (83%) represented the eight active component strata, 34 (9.7%) represented the Army Reserve National Guard (ARNG) stratum, and 26 (7.4%) represented the U.S. Army Reserve (USAR) stratum. While the active component respondents clearly outweighed the ARNG and USAR respondents, the participants from each of the three groups were proportional to the number of possible respondents selected from each group. The number responding from the active component represented 60% of the total possible active duty respondents; the number responding from the ARNG represented 57% of the total possible ARNG respondents; the number responding from the USAR represented 45% of the total possible USAR respondents.

The responses from Round II were analyzed in three regards. First, the mean value for each question was computed to rank the questions in order of importance. Second, the median value for each question was ascertained. Finally, the interquartile range (IQR) for each question was derived. This third element of the analysis afforded a way to provide feedback to the respondents regarding the range representing the 25th through 75th percentile of the participants' responses. The findings regarding each of these Round II analyses are presented in Appendix E.

Round III

Round III of the Delphi survey began on 18 May 1990. The goal of Round III was to achieve consensus among the respondents regarding the relative importance of the research topics. Questionnaires were sent to the 352 individuals who participated in Round II. A total of 271 individuals responded to Round III which represents 47% of the 577 original possible respondents and 77% of those who responded to Round II. The Round III questions were the same as those used in Round II. There were, however, four differences in the questionnaires between Round II and Round III.

First, Round III questionnaires indicated the sample's IQR derived from Round II data. Second, each participant's specific rating for each question was also noted. (See the sample at Appendix F.) In Round III, participants were asked to reconsider their rating for each question in view of the sample's IQR and their previous rating. Finally, the respondents were provided a page on which they could return comments. The comment page provided a mechanism for the respondents to express their opinions about particular questions or about the survey in general.

The process of providing feedback to the respondents in Round III is an important element of the Delphi method. In this way, each individual respondent is apprised of how the entire group of respondents regarded the importance of each of the items

in the survey. For this particular study, the individuals were informed of the collective group response concerning the importance of the 40 research topics.

Round III findings will be reported in three parts. The demographic characteristics of the sample will be described in part one. The priority of questions based upon mean scores for each question will be presented in part two. Finally, the comments expressed regarding particular questions and the survey in general will be summarized.

Sample characteristics. Demographic traits of this sample are reported for those 271 participants who continued with the study through all three rounds (n = 180 women; n = 77 men; n = 14 gender unmarked). This represents 45% of the original 600 individuals who had been selected as the study sample. The Round III participants were distributed as follows: (a) 223 active component, (b) 28 ARNG, and (c) 20 USAR. The proportionate representation of the three aforementioned groups was similar for active component and ARNG at 46% and 47% respectively of the original number of possible participants. The USAR proportion was less, at 33% of the original sample.

The ages of the participants ranged from 26 to 55 years old (M = 40; SD = 5.85). All respondents had at least 5 years of experience as a registered nurse (RN), with 1 person having 35 years experience (M = 16; SD = 7.05). All AOCs were represented in the final sample. The most responses were returned by individuals in the medical-surgical AOC (66H) (n = 46; 17.0%), while the fewest responses were returned by individuals in the pediatric AOC (66D) (n = 24; 8.9%). No respondents indicated having a rank other than those selected for the study (i.e., captain to colonel). The rank most represented by study participants was major (n = 101; 37.3%), and the rank least represented was colonel (n = 20; 7.4%).

The duty assignments of the sample covered the entire range of possibilities listed on the demographic questionnaire at Appendix D. The duty position with the least representation was clinical nurse instructor (n = 5), while the duty position with the highest representation was clinical head nurse (n = 47); clinical staff nurses had the second highest representation (n = 40). There were 15 respondents who believed their duty assignment was something other than the 13 options listed.

The educational preparation of the sample represents the diversity in nursing education as well as the variation in educational criterion between the active and reserve components. Most Round III respondents had at least a masters degree (n = 167; 61.6%). There were seven participants, all members of the reserve components, who had either the associate degree or nursing diploma. A similar small number of participants (n = 9) were prepared at the doctoral level.

Priority of questions. The responses from Round III were analyzed for the total sample. Similar to Round II, the mean value for each question was computed to rank the questions in order of importance, and the median value for each question was also ascertained. The findings for the total sample regarding each of these analyses are presented in Table 4. It is evident that the range of the means for the questions was quite small. The mean for the least important question was 4.1276, whereas the mean for the most important question was 6.3061.

For both Round II and Round III, Question 7, "What mechanisms can be instituted to increase ANC officers' satisfaction with career development and career guidance?", was identified as having the most importance among the 40 questions (Table 5). Similarly, the seventh and tenth most important questions, questions 17 and 5 respectively, did not vary between Rounds II and III. Although the remaining 7 of the top 10 questions did change priority between the two rounds, each of the questions was in the top 10 for both rounds.

There was less variation in the rank order between Rounds II and III among the bottom ten questions (Table 6). The priority of the bottom six questions did not change. The least important question for both rounds was question 33: "Compare and contrast case management with current practice models". Unlike the top questions where the questions in the grouping did not change although the order did, there were 4 questions in the bottom 10 that were not present in both Rounds II and III.

Along with the findings for the total sample, the same analyses were conducted for two subsets of the sample. More specifically, the priorities of the questions were compared for the active component and a combination of the ARNG and USAR groups, or reserve components. The priorities were also derived for each of the eight AOCs or nursing specialties.

Of the 40 study questions, only four were ranked identically by both the active and reserve component subsets (Table 7). For both groups, the sixteenth priority was Question 20, the nineteenth priority was Question 1, the thirty-eighth priority was Question 12, and the fortieth or lowest priority was Question 33. This latter question was, "Compare and contrast case management with current practice models".

The question with the highest priority did vary between these subsets. The active component identified Question 7, "What mechanisms can be instituted to increase ANC officers' satisfaction with career development and career guidance?" as most important. The reserve components (ARNG/USAR) identified the top priority to be Question 38, "What are the critical factors in training Reserve Component ANC officers for mobilization?".

Table 4

Number of Respondents Per Question, Rank Order, Mean, and Media of Data from the Total Round III Sample

(N = 271)

QUESTION	n	RANK ORDER	MEAN	MEDIAN
1. What strategies can be implemented to enhance the image of the ANC?	246	20	5.4472	6
2. What is the relationship between the values of the new lieutenants' generation and the expectations/values of the ANC?	244	32	5.0615	5
3. What are the perceptions of junior officers regarding career progression?	246	25	5.2724	5
4. Given the scope of the head nurse role, what tactics enable head nurses to meet all their responsibilities?	251	11	5.6773	6
5. What are the experiences that best prepare head nurses for the role?	249	10	5.6827	6
6. What specific experiences/preparation do upper level managers perceive as crucial to successfully accomplishing the upper level management role?	246	12	5.5732	6
7. What mechanisms can be instituted to increase ANC officers' satisfaction with career development and career guidance?	245	1	6.3061	7
8. What is the relationship between career progression and repeat clinical assignments?	244	34	4.9672	5

Table 4 (continued)

QUESTION	n	RANK ORDER	MEAN	MEDIAN
9. What is the relationship between concurrent field unit assignment/hospital utilization and duty performance, satisfaction, and career progression of ANC officers?	245	35	4.9592	5
10. How will having both clinical and administrative career tracks affect satisfaction, assignments, promotions, and the nursing shortage?	244	5	5.9877	6
11. Is there a need for standardized training and a specific skill identifier for Army nurses working in emergency departments?	244	33	4.9877	5
12. What factors affect the use of research findings in the ANC?	240	39	4.5333	5
13. What strategies can be implemented to increase clinical research at the unit level?	246	37	4.5610	5
14. Compare and contrast the advantages and disadvantages of a hospital organizational structure that includes the senior nurse manager as Deputy Commander for Nursing with the current organizational structure.	245	24	5.2776	6
15. Compare and contrast leadership qualifications among ANC officers with the requirements of command positions.	245	15	5.5265	6
16. What is the relationship between bonuses (or lack thereof) and retention?	240	3	6.0542	6

Table 4 (continued)

QUESTION	n	RANK ORDER	MEAN	MEDIAN
17. How will morale and retention be affected within specialties that do not receive bonuses?	242	7	5.9835	6
18. What DOPMA changes would assist in retaining ANC officers?	240	6	5.9875	6
19. What factors are related to retaining enlisted medics?	247	19	5.4858	6
20. What is the best way to use paraprofessionals to assist in accomplishing the ANC mission?	247	17	5.5020	6
21. What child care issues impact on accomplishing the daily military mission and obligations in the AMEDD?	246	31	5.1138	5
22. What is the cost of both inpatient and outpatient nursing services in the military?	245	26	5.2327	6
23. As the military adopts Diagnosis Related Groups (DRGs), what are the effects on care?	244	8	5.8361	6
24. How will budget reductions affect the quality of care as well as who will receive care?	245	2	6.1714	7
25. What is the impact of contract nursing staff on standards of care, morale, staffing ratios, and changes in schedules of other staff?	248	9	5.8024	6
26. Compare and contrast priorities as identified by clinical nurses with those identified by nurse administrators.	241	14	5.5477	6

Table 4 (continued)

QUESTION	n	RANK ORDER	MEAN	MEDIAN
27. What are the advantages and disadvantages of standardization among Medical Treatment Facilities (MTFs) in regard to standards of care, quality assurance, risk management, infection control, inservice manuals, and skill/knowledge verification?	246	16	5.5081	6
28. What are the best measures of the effectiveness of nursing interventions on patient outcomes?	247	27	5.2146	5
29. What is the relationship between nursing standards of care and patient outcomes?	245	29	5.1837	5
30. Are pediatric critical care standards achieved when pediatric patients receive care in adult critical care units?	246	38	4.5366	4
31. What factors influence repeat admissions and can these factors be influenced by nursing intervention?	246	30	5.1748	5
32. What self-care or family-care functions could be instituted to decrease nursing care time?	242	28	5.2025	5
33. Compare and contrast case management with current practice models.	243	40	4.1276	4
34. Evaluate telephone counseling and triage in terms of cost effectiveness, efficacy, and legal issues.	244	36	4.7869	5

Table 4 (continued)

QUESTION	n	RANK ORDER	MEAN	MEDIAN
35. What are valid predictors of readiness for the ANC?	242	13	5.5661	6
36. What is the relationship between ANC officers' family responsibilities and readiness?	246	23	5.2886	6
37. What is the best way to train ANC officers and enlisted personnel for a wartime mission while maintaining peacetime quality of care?	248	4	6.0484	6
38. What are the critical factors in training Reserve Component ANC officers for mobilization?	244	21	5.3812	6
39. What is the relationship between current training practices and nurses' proficiency in setting up and using combat hospital equipment?	245	22	5.3102	6
40. What is the impact on the AMEDD of physical training and weight standards?	242	18	5.4876	6

Table 5

Comparison of the Rank Order of the Top Ten Questions from Round II and Round III

RANK ORDER	ROUND II QUESTION	ROUND III QUESTION
1	7: What mechanisms can be instituted to increase ANC officers' satisfaction with career development and career guidance?	7: What mechanisms can be instituted to increase ANC officers' satisfaction with career development and career guidance?
2	18: What DOPMA changes would assist in retaining ANC officers?	24: How will budget reductions affect the quality of care as well as who will receive care?
3	10: How will having both clinical and administrative career tracks affect satisfaction, assignments, promotions, and the nursing shortage?	16: What is the relationship between bonuses (or lack thereof) and retention?
4	24: How will budget reductions affect the quality of care as well as who will receive care?	37: What is the best way to train ANC officers and enlisted personnel for a wartime mission while maintaining peacetime quality of care?
5	37: What is the best way to train ANC officers and enlisted personnel for a wartime mission while maintaining peacetime quality of care?	10: How will having both clinical and administrative career tracks affect satisfaction, assignments, promotions, and the nursing shortage?

Table 5 (continued)

RANK ORDER	ROUND II QUESTION	ROUND III QUESTION
6	16: What is the relationship between bonuses (or lack thereof) and retention?	18. What DOPMA changes would assist in retaining ANC officers?
7	17: How will morale and retention be affected within specialties that do not receive bonuses?	17: How will morale and retention be affected within specialties that do not receive bonuses?
8	25: What is the impact of contract nursing staff on standards of care, morale, staffing ratios, and changes in schedules of other staff?	23: As the military adopts Diagnosis Related Groups (DRGs), what are the effects on care?
9	23: As the military adopts Diagnosis Related Groups (DRGs), what are the effects on care?	25: What is the impact of contract nursing staff of standards of care, morale, staffing ratios, and changes in schedules of other staff?
10	5: What are the experiences that best prepare head nurses for the role?	5: What are the experiences that best prepare head nurses for the role?

Table 6

Comparison of the Rank Order of the Bottom Ten Questions from Round II and Round III

RANK ORDER	ROUND II QUESTION	ROUND III QUESTION
31	8: What is the relationship between career progression and repeat clinical assignments?	21: What child care issues impact on accomplishing the daily military mission and obligations in the AMEDD?
32	31: What factors influence repeat admissions and can these factors be influenced by nursing intervention?	2: What is the relationship between the values of the new lieutenants' generation and the expectations/values of the ANC?
33	2: What is the relationship between the values of the new lieutenants' generation and the expectations/values of the ANC?	11: Is there a need for standardized training and a specific skill identifier for Army nurses working in emergency departments?
34	14: Compare and contrast the advantages and disadvantages of a hospital organizational structure that includes the senior nurse manager as Deputy Commander for Nursing with the current organizational structure.	8: What is the relationship between career progression and repeat clinical assignments?

Table 6 (continued)

RANK ORDER	ROUND II QUESTION	ROUND III QUESTION
35	9: What is the relationship between concurrent field unit assignment /hospital utilization and duty performance, satisfaction, and career progression of ANC officers?	9: What is the relationship between concurrent field unit assignment /hospital utilization and duty performance, satisfaction, and career progression of ANC officers?
36	34: Evaluate telephone counseling and triage in terms of cost effectiveness, efficacy, and legal issues.	34: Evaluate telephone counseling and triage in terms of cost effectiveness, efficacy, and legal issues.
37	13: What strategies can be implemented to increase clinical research at the unit level?	13: What strategies can be implemented to increase clinical research at the unit level?
38	30: Are pediatric critical care standards achieved when pediatric patients receive care in adult critical care units?	30: Are pediatric critical care standards achieved when pediatric patients receive care in adult critical care units?
39	12: What factors affect the use of research findings in the ANC?	12: What factors affect the use of research findings in the ANC?
40	33: Compare and contrast case management with current practice models.	33: Compare and contrast case management with current practice models.

Table 6 (continued)

RANK ORDER	ROUND II QUESTION	ROUND III QUESTION
35	9: What is the relationship between concurrent field unit assignment /hospital utilization and duty performance, satisfaction, and career progression of ANC officers?	9: What is the relationship between concurrent field unit assignment /hospital utilization and duty performance, satisfaction, and career progression of ANC officers?
36	34: Evaluate telephone counseling and triage in terms of cost effectiveness, efficacy, and legal issues.	34: Evaluate telephone counseling and triage in terms of cost effectiveness, efficacy, and legal issues.
37	13: What strategies can be implemented to increase clinical research at the unit level?	13: What strategies can be implemented to increase clinical research at the unit level?
38	30: Are pediatric critical care standards achieved when pediatric patients receive care in adult critical care units?	30: Are pediatric critical care standards achieved when pediatric patients receive care in adult critical care units?
39	12: What factors affect the use of research findings in the ANC?	12: What factors affect the use of research findings in the ANC?
40	33: Compare and contrast case management with current practice models.	33: Compare and contrast case management with current practice models.

Table 7

Comparison of the Rank Order of All Round III Questions for the Total Sample with the Active Duty Component and the U.S. Army Reserve and Army Reserve National Guard Subsets

RANK ORDER	TOTAL SAMPLE QUESTION NO.	ACTIVE DUTY QUESTION NO.	USAR & ARNG QUESTION NO.
1	7	7	38
2	24	24	37
3	16	16	24
4	37	17	7
5	10	18	10
6	18	37	18
7	17	10	35
8	23	23	19
9	25	25	39
10	5	5	25
11	4	4	17
12	6	6	15
13	35	26	16
14	26	27	23
15	15	35	40
16	27	20	20
17	20	15	26
18	40	40	27
19	19	1	1
20	1	14	4
21	38	19	36
22	39	3	6
23	36	22	5
24	14	36	31
25	3	28	11
26	22	39	32

Table 7 (continued)

RANK ORDER	TOTAL SAMPLE QUESTION NO.	ACTIVE DUTY QUESTION NO.	USAR & ARNG QUESTION NO.
27	28	32	29
28	32	29	21
29	29	31	9
30	31	38	28
31	21	2	3
32	2	21	34
33	11	8	2
34	8	11	22
35	9	9	14
36	34	34	30
37	13	13	8
38	30	12	12
39	12	30	13
40	33	33	33

Note. See Appendix F for the questions.

There were no study questions ranked identically among all AOCs (Table 8). There was no agreement between even two AOC groups for 11 rankings: These were priority 10, 15, 16, 19, 21, 22, 23, 25, 31, 33, and 35. Question 7, "What mechanisms can be instituted to increase ANC officers' satisfaction with career development and career guidance?", was ranked most important by five of the eight AOC groups. This question was ranked second and third by two other groups (nurse anesthetists--66F and operating room nurses--66E respectively), and it was ranked sixteenth by the nurse administrators (66A). Ranked as second most important by four of the eight groups was Question 24: "How will budget reductions affect the quality of care as well as who will receive care?". This question was ranked third and fifth by two other groups, 66F and 66E. It was ranked thirteenth by the nurse administrators.

Table 8

Comparison of the Rank Order of All Questions in Round III According to Area of Concentration

RANK ORDER	AREA OF CONCENTRATION							
	66A	66B	66C	66D	66E	66F	66G	66H
1	22	7	7	7	16	16	7	7
2	23	24	24	24	17	7	24	10
3	25	16	18	10	7	24	16	37
4	18	17	10	4	18	18	17	24
5	37	37	16	5	24	17	25	18
6	1	10	17	23	37	37	37	16
7	19	18	40	37	6	23	5	4
8	28	23	4	16	5	10	10	38
9	35	31	25	25	23	15	18	17
10	38	40	5	14	10	39	4	35
11	4	35	6	17	40	40	27	6
12	5	6	37	27	15	25	26	1
13	24	25	23	21	4	26	21	25
14	16	22	14	26	25	20	23	26
15	20	26	35	6	3	19	1	27
16	7	32	20	30	1	27	8	36
17	14	29	26	20	14	35	19	5
18	10	28	15	19	19	1	20	14
19	17	20	1	22	39	29	36	2
20	27	27	36	40	26	38	6	15
21	6	15	19	3	35	22	32	40
22	32	34	28	39	9	4	15	23
23	31	5	29	8	20	36	35	19
24	15	14	3	13	36	3	3	3
25	29	21	32	15	27	28	31	20
26	26	39	2	35	38	5	2	39

Table 8 (continued)

RANK ORDER	AREA OF CONCENTRATION							
	66A	66B	66C	66D	66E	66F	66G	66H
27	3	19	8	2	8	11	39	11
28	11	4	22	29	11	8	40	21
29	21	8	31	1	2	9	38	31
30	2	9	38	18	21	32	9	9
31	39	36	27	31	28	6	14	32
32	36	3	39	32	29	14	29	29
33	9	11	12	28	32	31	34	22
34	34	38	33	36	31	2	28	12
35	40	12	9	38	22	30	13	8
36	13	13	21	11	30	21	11	28
37	30	30	11	34	13	12	12	34
38	8	2	34	9	34	34	22	13
39	33	1	13	12	12	13	30	33
40	12	33	30	33	33	33	33	30
n	36	26	30	24	32	30	26	46

Note. See Appendix F for questions.

At the other end of the priority continuum, Question 33, "Compare and contrast case management with current practice models", was ranked fortieth or lowest priority by five groups, thirty-ninth priority by two groups (66A and 66H), and thirty-forth priority by one group (psychiatric nurses--66C). Question 34, "Evaluate telephone counseling and triage in terms of cost effectiveness, efficacy and legal issues", was the third lowest priority for three groups, and the fourth lowest priority in two groups.

Summary of comments. In Round III, respondents were afforded the opportunity to provide comments regarding either specific questions or the survey in general. While not integral to the Delphi process, some interesting insights are derived from the comments.

There were 47 individuals who commented on one or more specific study questions, 23 individuals who provided general comments, and 7 individuals who made both specific and general comments. Several of the individuals who commented on specific questions wrote remarks regarding more than one questions. Those remarks not related to a specific question could, overall, be related to the 40 questions on the survey. In a few cases, the comments were generic. For example, some respondents commented on the importance of establishing priorities for research or expressed gratitude for the opportunity to participate in the survey.

At least one comment was received for all but 5 questions: numbers 3, 9, 10, 31, and 33. As previously indicated, question 33, dealing with case management, was ranked "least important".

Conversely, the question ranked most important by the active component dealt with mechanisms to increase officers' satisfaction with career development and guidance. It elicited some firm remarks. Participants stated career guidance was imperative, as it solidified nurses' commitment to the ANC. However, career guidance was noted as too often neglected by head nurses and supervisors until some action forced the issue.

Overall, the remarks conveyed both constructive criticism of the various research topics as well as enthusiastic support for them. Nevertheless, a positive tone pervaded most comments. A diversity in perspectives on common topics was also evident. An example of the differing views is found by considering question 14; it concerned having a Deputy Commander for Nursing. One participant commented that changing job titles would contribute to confusion; another indicated that the change was essential. These views do not represent a continuum of right versus wrong. They simply underscore the myriad aspects and attitudes that surround any one question.

DISCUSSION

Based on the results of a three round Delphi survey, the research priorities of the ANC were established. The priorities were identified according to an empirical analysis of information derived from experienced active and reserve component ANC officers. All specialties within the ANC were represented (see Tables 1 and 2). There were 271 individuals who responded to Round III which represents 47% of the original group and 77% of Round II respondents. A response rate of this magnitude is impressive for survey research in general and Delphi surveys in particular. It supports the concept that Army nurses want the opportunity to have a voice in providing direction for future research.

It is evident that the priority of the questions did shift between Rounds II and III (see Appendix E and Tables 4, 5, and 6). This is an expected occurrence in the Delphi process. In Round II, respondents had only their individual opinions as a basis for prioritizing the questions. In Round III, respondents could modify their responses by considering them in the context of the group IQR. The shifts in the rank order are an expected outcome of the Delphi process to achieve a consensus of opinion.

The respondents demonstrated that an interest in research exists among members of the ANC. This interest was reflected both in the number of respondents and in the remarks that people made on the comment sheet from Round III. The narrow range of the means for the 40 questions indicates that all questions were reasonably important to the respondents. There were not questions that were highly important and others that were deemed inconsequential. As one of the individuals who provided comments wrote, "All of the research questions are of . . . great . . . importance, and yet there has to be a way to prioritize."

Total sample findings must be interpreted in view of the subsets comprising the sample. Because there were substantially more active component participants in the study (n = 223) than reserve component representatives (n = 48), the active component perspective may dominate the total sample findings. Although the total sample responses are clearly different from either component alone, the influence of the active component must be considered. The nursing specialty areas as designated by AOC, however, were more comparable in their representativeness making the contribution of each specialty group more equivalent.

The differences among subsets of the sample are important considerations. Differences between the active and reserve component subsets suggest that degree of military involvement does influence how nurses view research priorities. Although the most important questions vary between the groups, the variation makes sense from the perspective of the relationship to the military for each group. Military life is inextricable from the active duty nurses personal and professional lives. Military expectations and norms are less dominant in the day-to-day life of Army Reserve National Guard and U.S. Army Reserve nurses. It may therefore be more important to link priority rankings to the specific subset rather than responding to the total sample rankings in general.

Likewise, the differences among AOCs highlight some interesting phenomena. For example, nurses in the administrative specialty (66A) viewed the top two research priorities quite differently than did nurses in other specialties. Question 7 was the top priority for five of the eight AOC's and Question 24 was the second priority for four of the eight AOC's. For the groups that ranked these questions lower, the priority remained high except for the administrative specialty group. The

administrators ranked Question 7 as sixteenth in priority and Question 24 as thirteenth in priority. It is neither possible nor prudent to make strong interpretative statements from this difference. It may, however, suggest that administrative nurses simply see the world from a different perspective than clinical nurses.

Most of the individual questions submitted during Round I were not clinically focused (see Table 3). It is important to interpret this finding carefully. The instructions to the study participants requested questions important to the Army Nurse Corps. The implied breadth in this guidance may have dissuaded people from submitting clinical questions that may have been more limited in scope. It is therefore not possible to assert that clinical questions were less important to the participants. It is simply that clinical questions may have been perceived as having less application to the total ANC than questions in the other categories.

Furthermore, the more narrow focus of the clinical questions that were submitted is evident in the inability to consolidate the questions into notably fewer study questions (see Table 3). The more specific focus of the questions precluded integrating them into fewer study questions. This specificity also limited the applicability of the questions to the ANC in general. Conversely, not only were more individual questions relevant to the four nonclinical categories, but it was possible to synthesize the individual questions into considerably fewer study questions.

Following the expert panel analysis, there were few clinical questions relative to the other categories that remained on the questionnaire used in Rounds II and III. Again, the emphasis on retaining a broad view of the ANC needs may have minimized the applicability of the more specific and narrow clinical questions. For example, questions about critically ill neonates are relevant only to select treatment facilities, not to all health care arenas. Therefore, the fewer clinical questions must be considered within the context of the study parameters. The lack of clinical focus is congruent with the health care systems issues that are central to AMEDD Study Board program objectives.

A brief, final comment concerns a secondary benefit of this Delphi study. That is, the questions clearly reflect the concerns of the members of the ANC. Information from this study can be used by the senior leadership in conjunction with findings from other reports such as the Proud to Care study. These studies are sources of important information regarding issues that the members of the ANC believe need attention.

CONCLUSIONS

These findings represent a consensual basis regarding research priorities for the ANC. They provide an empirical basis for recommending future ANC study topics to the AMEDD study board for funding support. The findings of the total sample as well as each of the subsets offer a slightly different interpretation of the importance of each of the 40 questions. Each of the perspectives is important depending upon the forum in which the information will be used.

The response rate reflected a high degree of interest in research among members of the ANC. The mean values for each question fell within a narrow band, suggesting that all questions were reasonably important to the respondents. It is not surprising that the majority of the questions had a management or administrative focus considering the guidance to submit questions pertinent to the Army Nurse Corps in general.

This does not suggest that other questions, particularly those that pertain to clinical practice, are not of concern to Army nurses. It simply means that clinical questions may be more specific in scope, thereby limiting there applicability to the total ANC. Nevertheless, the findings from this study should provide a solid framework for decision-making regarding questions that might be funded by the AMEDD Study Board.

RECOMMENDATIONS

The primary recommendation from this study is to present the findings of this study to the Nursing Research Advisory Board (NRAB) so that the members of that body can use the data for developing ideas to be submitted to the AMEDD Study Board. This was done: The findings were presented at the NRAB in 1990.

Considering the scope of these questions, it is also recommended that the support of other agencies be solicited to conduct studies that address specific questions that fall within their purview. For example, Medical Research and Development Command could be asked to become the lead agency for the questions that address readiness. Similarly, the ARNG and USAR units might study those questions that pertain to nurses in those components.

Additional recommendations include informing the nursing subspecialty consultants of research questions that relate to their particular expertise. It is possible that the various consultants could initiate studies to address these questions. The list of questions might also be used as a reference for Army nurses in long-term civilian education programs to identify study topics for theses or dissertations. The question list might also give direction to Nursing Research Committees at individual

medical treatment facilities. Many of the questions in this survey, however, exceed the scope of any one installation. It is recommended that either students or MTFs embark on these studies only after considering their magnitude and critical issues such as gaining entrée to multiple sites in order to acquire a representative sample.

These data can also be used by members of the ANC to seek extramural funding. Because of the considerable competition for funds, it is essential that there be a good fit between the goals of the funding agency and the research questions. For example, the National Center for Nursing Research is primarily interested in questions with a clinical thrust. Question 28, which focuses on patient outcomes, might meet this criteria. There are other agencies, however, that are also possible funding sources. These include the Health Research Services Agency (HRSA), the Agency for Health Care Policy and Research (AHCPR), and the Division of Nursing. These agencies are all federally based. Private foundations such as Robert Wood Johnson and the Pew Memorial Trust also fund extramural studies.

Another recommendation is to establish a mechanism for identifying and conducting clinical studies under the auspices of the ANC. Because of the wealth of opportunity for clinical nursing research within the AMEDD, it is imperative to set in place a mechanism to conduct clinical nursing studies. A possible approach would be to establish clinical research centers at each of the Army Medical Centers. The staff at the research centers could guide the work at their facility as well as projects at the Army Community Hospitals in their region. To ensure success of the studies, it would be important to have the projects reviewed or conducted by experienced nurse researchers.

The final recommendation of this report concerns conducting a similar appraisal regarding research priorities in the future. Over time, the priorities will shift as the context of care delivery changes. Therefore, a similar study will be needed to update the priorities. The value of basing research priorities on empirical findings is considerable. However a decision will need to be made regarding which research method will best meet this need. The Delphi approach allows for a large number of people to participate, but it is a resource intensive method. A focal group approach might take less time, but it confines the priority setting to the views of the individuals in the group. The relative advantages between these approaches and others must be considered to decide the best way to reassess the research priorities. Nevertheless, the final recommendation is that an empirical approach be implemented at appropriate intervals to reestablish the research priorities of the ANC.

REFERENCES

Anderson, P. (1986). The Delphi technique in practice. The Australian Journal of Advanced Nursing, 3(2), 22-32.

Baker, C. M. (1985). Maximizing mailed questionnaire responses. Image, 17, 118-121.

Bond, S., & Bond, J. (1982). A Delphi survey of clinical nursing research priorities. Journal of Advanced Nursing, 7, 565-575.

Braddom, C. L., & Braddom, R. L. (1986). A Delphi survey of traits of effective physiatric leaders. Archives of Physical Medicine and Rehabilitation, 67, 793-795.

Brower, H. T., & Crist, M. A. (1985). Research priorities in gerontologic nursing for long-term care. Image, 17, 22-27.

Crosby, F. E., Ventura, M. R., & Feldman, M. J. (1989). Examination of a survey methodology: Dillman's total design method. Nursing Research, 38, 56-58.

Degner, L., Arcand, R., Chekryn, J., Davies, E., Dyck, S., Kristjanson, L., Stewart, N., & Warren, B. (1987). Priorities for cancer nursing research: A Canadian replication. Cancer Nursing, 10, 319-326.

Delbecq, A. L., Van de Ven, A. H., & Gustafson, D. H. (1975). Group techniques for program planning, a guide to nominal groups and Delphi technique. Glenview, IL: Scott, Foresman.

Funkhouser, S. W., & Grant, M. M. (1989). 1988 ONS survey of research priorities. Oncology Nursing Forum, 16, 413-416.

Gabby, J., & Francis, L. (1988). How much day surgery? Delphic predictions. British Medical Journal, 297, 1249-1252.

Goodman, C. M. (1987). The Delphi technique: A critique. Journal of Advanced Nursing, 12, 729-734.

Helmer, O. (1983). Looking forward: A guide to future research. Beverly Hills, CA: Sage.

Henry, B., Moody, L. E., Pendergast, J. F., O'Donnell, J., Hutchinson, S. A., & Scully, G. (1987). Delineation of nursing administration research priorities. Nursing Research, 36, 309-314.

Henry, B., O'Donnell, J. F., Pendergast, J. F., Moody, L. E., & Hutchinson, S. A. (1988). Nursing administration research in hospitals and schools of nursing. Journal of Nursing Administration, 18(2), 28-31.

Krueger, R. A. (1988). Focus groups: A practical guide for applied research. Newbury Park, CA: Sage.

Lewandowski, L. A., & Kositsky, A.M. (1983). Research priorities for critical care nursing: A study by the American Association of Critical Care Nurses. Heart and Lung, 12, 35-44.

Lindeman, C. A. (1975). Delphi survey of priorities in clinical nursing research. Nursing Research, 24, 434-441.

Marchette, L., & Faulconer, D. R. (1986). Perioperative nursing research: A study of priorities. AORN Journal, 44, 387-394.

Matheson, N. W. (1982). Perspectives on academic health sciences libraries in the 1980s: Indicators from a Delphi study. Bulletin of Medical Library Association, 70, 29-49.

McGee, R. F., Powell, M. L., Broadwell, D. C., & Clark, J. C. (1987). A Delphi survey of oncology clinical nurse specialist competencies. Oncology Nursing Forum, 14, 29-34.

McGuire, D., Frank-Stromborg, M., & Varricchio, C. (1985). 1984 ONS research committee survey of membership's research interests and involvement. Oncology Nursing Forum, 12, 99-103.

Morgan, D. L. (1988). Focus groups as qualitative research. Newbury Park, CA: Sage.

Pelton, J. N. (1981). The future of telecommunications: A Delphi survey. Journal of Communication, 31, 177-189.

Riesch, S. K., Fehring, R., & Schulte, J. (1987). Expanding the concept of continuing education conferences: The conference participants as a Delphi method sample. Journal of Continuing Education in Nursing, 18, 54-58.

Synowiez, B. B., & Synowicz, P. M. (1990). Delphi forecasting as a planned tool. Nursing Management, 21(4), 18-19.

Tanner, C. A., & Lindeman, C. A. (1987). Research in nursing education: Assumptions and priorities. Journal of Nursing Education, 26, 50-59.

Trivedi, V. M. (1982). Measurement of task delegations among nurses by nominal group process analysis. Medical Care, 20, 154-164.

Ventura, M. R., & Waligora-Serafin, B. (1981). Study priorities identified by nurses in mental health settings. International Journal of Nursing Study, 18, 41-46.

Ventura, M. R., Waligora-Serafin, B., & Crosby, F. (1989). Research priorities for the care of the veteran patient. Military Medicine, 154, 32-35.

Whittle, J. G., Grant, A. A., Sarll, D. W., & Worthington, H. V. (1987). The Delphi technique: Its use in dental health services research assessed in a study to improve care for elderly mentally ill patients. Community Dental Health, 4, 205-214.

Yancik, R., & Maklan, C. W. (1981). The Delphi method as a research tool in gerontological curriculum planning. Gerontology and Geriatrics Education, 1, 163-168.

Zelauskas, B. A., Howes, D. G., Christmyer, C. S., & Dennis, K. E. (1988). Bridging the gap: Theory to practice-Part II, research applications. Nursing Management, 19(9), 50-52.

INTENTIONALLY LEFT BLANK

APPENDIX A

DELPHI STUDY OF ANC RESEARCH PRIORITIES
ROUND I QUESTIONNAIRE

List 1-5 questions important to the Army Nurse Corps that can be answered by research. Limit the total number of questions on this sheet to 5. Write up to 5 questions under 1 category or write different questions in as many as 5 categories. Please return your completed questionnaire in the enclosed pre-addressed, stamped envelope by 12 February 1990.

ADMINISTRATION/MANAGEMENT	EDUCATIONAL
READINESS	**PROFESSIONAL**
CLINICAL	**OTHER**

INTENTIONALLY LEFT BLANK

APPENDIX B

QUESTION TOPICS BY CATEGORY DERIVED FROM ROUND I

Administration/Management

- Automation
- Budget cut impact
- CHAMPUS
- Child care/family
- Diagnosis Related Groups
- Head Nurse
- Managed Care
- Managers
- Manager training
- Nursing shortage
- Office Efficiency Reports
- Organizational structure
- Productivity/cost effectiveness
- Satisfaction
- Staffing/scheduling
- Supervisors
- Retention/recruiting
- Workload Management System for Nursing (WMSN)

Educational

- Basic Life Support/Advanced Cardiac Life Support/ Advanced Trauma Life Support
- Continuing education/inservice
- Content
- Methods/resources
- Military education
- Opportunities
- Orientation
- Paraprofessionals
- Patient education
- Doctorate/master's/long term civilian training

Readiness

- Assignment
- Equipment
- Family/pregnancy
- Field
- Mission/role
- Mobilization
- Nuclear, biological, chemical
- Physical fitness
- PROFIS
- Specialty
- Standards of care
- Readiness status/evaluation
- Training

Professional

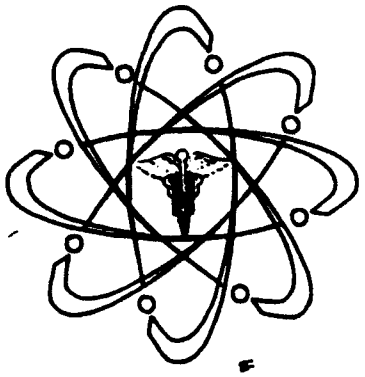
- Age
- Assignment
- Bonus/pay
- Career development
- Career tracts
- Certification
- Civilians
- Collegial practice/ relationships
- Command
- Drugs and alcohol
- Entry level
- Image
- Leaders
- Mentors
- Non-nursing tasks
- Nursing practice
- Professional development
- Professional organization
- Professionalism
- Promotion
- Quality Assurance indicators
- Research
- Roles/specialties

Clinical

Critical care
Documentation
Health
Infection
Maternal child health
Patients
Pediatrics
Planning
Psychiatric care
Technical skills
Smoking
Nursing staff
Standardization
Stress
Surgery

Other

There were no questions proposed in this category that could not be integrated within one of the other five established categories.



APPENDIX C

Soldiers' Support Center
Approval Number ATSC-A090-19

DELPHI STUDY OF ANC RESEARCH PRIORITIES

ROUND II QUESTIONNAIRE

INSTRUCTIONS: Using the scale next to each question, circle the rating (1 to 7) that reflects the importance of the research question to the Army Nurse Corps (ANC). EXAMPLE: Circling ONE (LOW) means that you DO NOT believe the question is very important; circling FOUR (middle) is neutral; circling SEVEN (HIGH) means that you believe the question is very important. There are no right or wrong answers. The responses simply represent your opinion regarding the importance of the question. There are 4 pages in the questionnaire. Please be sure to complete each of them.

	IMPORTANCE						
	Low						High
1. What strategies can be implemented to enhance the image of the ANC?	1	2	3	4	5	6	7
2. What is the relationship between the values of the new Lieutenants' generation and the expectations/values of the ANC?	1	2	3	4	5	6	7
3. What are the perceptions of junior officers regarding career progression?	1	2	3	4	5	6	7
4. Given the scope of the head nurse role, what tactics enable head nurses to meet all their responsibilities?	1	2	3	4	5	6	7
5. What are the experiences that best prepare head nurses for the role?	1	2	3	4	5	6	7
6. What specific experiences/ preparation do upper level managers perceive as crucial to successfully accomplish the upper level management role?	1	2	3	4	5	6	7
7. What mechanisms can be instituted to increase ANC officers' satisfaction with career development and career guidance?	1	2	3	4	5	6	7
8. What is the relationship between career progression and repeat clinical assignments?	1	2	3	4	5	6	7

PLEASE TURN TO THE NEXT PAGE

	IMPORTANCE						
	Low						High
9. What is the relationship between concurrent field unit assignment/hospital utilization and duty performance, satisfaction, and career progression of ANC officers?	1	2	3	4	5	6	7
10. How will having both clinical and administrative career tracts affect satisfaction, assignments, promotions, and the nursing shortage?	1	2	3	4	5	6	7
11. Is there a need for standardized training and a specific skill identifier for Army nurses working in emergency departments?	1	2	3	4	5	6	7
12. What factors affect the use of research findings in the ANC?	1	2	3	4	5	6	7
13. What strategies can be implemented to increase clinical research at the unit level?	1	2	3	4	5	6	7
14. Compare and contrast the advantages and disadvantages of a hospital organizational structure that includes the senior nurse manager as Deputy Commander for Nursing with the current organizational structure.	1	2	3	4	5	6	7
15. Compare and contrast leadership qualifications among ANC officers with the requirements of command positions.	1	2	3	4	5	6	7
16. What is the relationship between bonuses (or lack thereof) and retention?	1	2	3	4	5	6	7
17. How will morale and retention be affected within specialties that do not receive bonuses?	1	2	3	4	5	6	7
18. What DOPMA changes would assist in retaining ANC officers?	1	2	3	4	5	6	7
19. What factors are related to retaining enlisted medics?	1	2	3	4	5	6	7
20. What is the best way to use paraprofessionals to assist in accomplishing the ANC mission?	1	2	3	4	5	6	7

PLEASE TURN TO THE NEXT PAGE

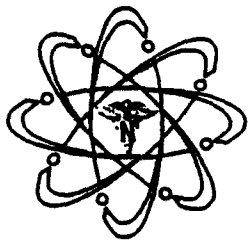
	IMPORTANCE						
	Low						High
21. What child care issues impact on accomplishing the daily military mission and obligations in the AMEDD?	1	2	3	4	5	6	7
22. What is the cost of both inpatient and outpatient nursing services in the military?	1	2	3	4	5	6	7
23. As the military adopts Diagnosis Related Groups (DRGs), what are the effects on care?	1	2	3	4	5	6	7
24. How will budget reductions affect the quality of care as well as who will receive care?	1	2	3	4	5	6	7
25. What is the impact of contract nursing staff on standards of care, morale, staffing ratios, and changes in schedules of other staff?	1	2	3	4	5	6	7
26. Compare and contrast priorities as identified by clinical nurses with those identified by nurse administrators.	1	2	3	4	5	6	7
27. What are the advantages and disadvantages of standardization among Medical Treatment Facilities (MTFs) in regard to standards of care, quality assurance, risk management, infection control, inservice manuals, and skill/ knowledge verification?	1	2	3	4	5	6	7
28. What are the best measures of the effectiveness of nursing interventions on patient outcomes?	1	2	3	4	5	6	7
29. What is the relationship between nursing standards of care and patient outcomes?	1	2	3	4	5	6	7
30. Are pediatric critical care standards achieved when pediatric patients receive care in adult critical care units?	1	2	3	4	5	6	7
31. What factors influence repeat admissions and can these factors be influenced by nursing intervention?	1	2	3	4	5	6	7

PLEASE TURN TO THE LAST PAGE

	IMPORTANCE						
	Low						High
32. What self-care or family-care functions could be instituted to decrease nursing care time?	1	2	3	4	5	6	7
33. Compare and contrast case management with current practice models.	1	2	3	4	5	6	7
34. Evaluate telephone counseling and triage in terms of cost effectiveness, efficacy and legal issues.	1	2	3	4	5	6	7
35. What are valid predictors of readiness for the ANC?	1	2	3	4	5	6	7
36. What is the relationship between ANC officers' family responsibilities and readiness?	1	2	3	4	5	6	7
37. What is the best way to train ANC officers and enlisted personnel for a wartime mission while maintaining peacetime quality of care?	1	2	3	4	5	6	7
38. What are the critical factors in training Reserve Component ANC officers for mobilization?	1	2	3	4	5	6	7
39. What is the relationship between current training practices and nurses' proficiency in setting up and using combat hospital equipment?	1	2	3	4	5	6	7
40. What is the impact on the AMEDD of physical training and weight standards?	1	2	3	4	5	6	7

THANK YOU!

Please return the Round II Questionnaire along with your completed Demographic Questionnaire no later than 20 April 1990. Your assistance in this important endeavor is greatly appreciated.



APPENDIX D

DELPHI STUDY OF ANC RESEARCH PRIORITIES
DEMOGRAPHIC QUESTIONNAIRE

Directions: *Please place an "x" by the correct answer to each question. Mark ONE answer only.*

1. What is your military duty status?

____Active Duty

____National Guard

____Reserve

2. What title best describes your present duty assignment?

____Chief, Department of Nursing; Chief Nursing Administration, Days

____Chief, Nursing Administration for Evenings and Nights; Chief, Clinical Nursing Service or Section

____Clinical Head Nurse

____Clinical Staff Nurse

____Nurse Anesthetist

____Clinical Nurse Specialist

____Nurse Practitioner

____Community Health Nurse

____Clinical Nurse Instructor

____Staff position in a MTF (e.g. Nursing Education and Staff Development, Quality Assurance, Infection Control, Nurse Methods Analyst)

____Staff officer (e.g. OTSG, AHS, HSC, DMIS, TRADOC, MEDCOM HQ)

____Student

____None of the above

3. What is the HIGHEST degree you have completed?

____Diploma from a School of Nursing

____Baccalaureate

____Masters

____Doctorate

4. What is your gender?

____Female Male____

Directions: *Please provide the requested information in the blank space.*

1. What is your present age?

_____Years Old

2. What is your Area of Concentration (AOC)? (This may not be the same as your current duty status.)

_____AOC

3. What is your rank?

_____Rank

4. How many years of experience do you have as a registered nurse?

_____Years

5. How many years of experience do you have as an active duty ANC officer?

_____Years

6. How many years of experience do you have an a reserve/national guard ANC officer?

_____Years

INTENTIONALLY LEFT BLANK

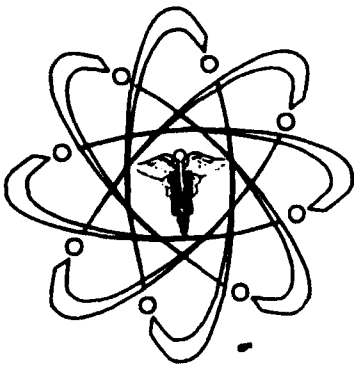
APPENDIX E

Number of Respondents Per Question, Rank Order, Mean, Median, and Interquartile Range for Round II Data (N = 352)

QUESTION	n	RANK ORDER	MEAN	MEDIAN	INTERQUARTILE RANGE
1	7	19	5.2629	6	4 - 7
2	5	33	5.0000	5	4 - 6
3	2	22	5.2120	5	4 - 6
4	3	12	5.4069	6	5 - 7
5	2	10	5.5230	6	5 - 7
6	23	11	5.4771	6	5 - 7
7	3	1	6.1307	6	6 - 7
8	4	31	5.0057	5	4 - 6
9	1	35	4.8736	5	4 - 6
10	20	3	5.8883	6	5 - 7
11	6	28	5.0571	5	4 - 6
12	2	39	4.3851	4	4 - 5.75
13	2	37	4.5416	5	4 - 6
14	5	34	4.9914	5	4 - 7
15	15	14	5.3457	6	4 - 7
16	7	6	5.7822	6	5 - 7
17	1	7	5.7151	6	5 - 7
18	7	2	5.9054	6	5 - 7
19	1	18	5.2800	5	5 - 6
20	3	16	5.3162	6	5 - 6
21	7	27	5.0778	5	4 - 7
22	6	30	5.0171	5	4 - 6
23	1	9	5.5387	6	5 - 7
24	1	4	5.8621	6	5 - 7
25	1	8	5.5661	6	5 - 7

APPENDIX E (continued)

QUESTION	n	RANK ORDER	MEAN	MEDIAN	INTERQUARTILE RANGE
26	1	17	5.3020	5	4 - 7
27	4	20	5.2350	5	4 - 7
28	1	24	5.1433	5	4 - 6
29	1	26	5.1057	5	4 - 6
30	1	38	4.4697	4	4 - 6
31	1	32	5.0029	5	4 - 6
32	1	29	5.0313	5	4 - 6
33	5	40	4.1667	4	3 - 5
34	1	36	4.6963	5	4 - 6
35	37	13	5.3629	6	4 - 7
36	12	25	5.1286	6	5 - 7
37	49	5	5.8494	6	5 - 7
38	8	21	5.2308	5	4 - 7
39	17	23	5.3181	6	4 - 7
40	16	15	5.3181	6	4 - 7



APPENDIX F

Soldiers' Support Center
Approval Number ATNC-A090-19

DELPHI STUDY OF ANC RESEARCH PRIORITIES

ROUND III QUESTIONNAIRE

INSTRUCTIONS: Using the scale next to each question, circle the rating (1 to 7) that reflects the importance of the research question to the Army Nurse Corps (ANC). EXAMPLE: Circling ONE (LOW) means that you DO NOT believe the question is very important; circling FOUR (middle) is neutral; circling SEVEN (HIGH) means that you believe the question is very important. There are no right or wrong answers. The responses simply represent your opinion regarding the importance of the question. There are 4 pages in the questionnaire. Please be sure to complete each of them. A "Comments" sheet is enclosed.

	IMPORTANCE						
	Low						High
1. What strategies can be implemented to enhance the image of the ANC?	1	2	3	4	5	6	7
2. What is the relationship between the values of the new Lieutenants' generation and the expectations/values of the ANC?	1	2	3	4	5	6	7
3. What are the perceptions of junior officers regarding career progression?	1	2	3	4	5	6	7
4. Given the scope of the head nurse role, what tactics enable head nurses to meet all their responsibilities?	1	2	3	4	5	6	7
5. What are the experiences that best prepare head nurses for the role?	1	2	3	4	5	6	7
6. What specific experiences/ preparation do upper level managers perceive as crucial to successfully accomplish the upper level management role?	1	2	3	4	5	6	7
7. What mechanisms can be instituted to increase ANC officers' satisfaction with career development and career guidance?	1	2	3	4	5	6	7

PLEASE TURN TO THE NEXT PAGE

	IMPORTANCE Low						High
8. What is the relationship between career progression and repeat clinical assignments?	1	2	3	4	5	6	7
9. What is the relationship between concurrent field unit assignment/hospital utilization and duty performance, satisfaction, and career progression of ANC officers?	1	2	3	4	5	6	7
10. How will having both clinical and administrative career tracts affect satisfaction, assignments, promotions, and the nursing shortage?	1	2	3	4	5	6	7
11. Is there a need for standardized training and a specific skill identifier for Army nurses working in emergency departments?	1	2	3	4	5	6	7
12. What factors affect the use of research findings in the ANC?	1	2	3	4	5	6	7
13. What strategies can be implemented to increase clinical research at the unit level?	1	2	3	4	5	6	7
14. Compare and contrast the advantages and disadvantages of a hospital organizational structure that includes the senior nurse manager as Deputy Commander for Nursing with the current organizational structure.	1	2	3	4	5	6	7
15. Compare and contrast leadership qualifications among ANC officers with the requirements of command positions.	1	2	3	4	5	6	7
16. What is the relationship between bonuses (or lack thereof) and retention?	1	2	3	4	5	6	7
17. How will morale and retention be affected within specialties that do not receive bonuses?	1	2	3	4	5	6	7
18. What DOPMA changes would assist in retaining ANC officers?	1	2	3	4	5	6	7

PLEASE TURN TO THE NEXT PAGE

	IMPORTANCE Low						High
19. What factors are related to retaining enlisted medics?	1	2	3	4	5	6	7
20. What is the best way to use paraprofessionals to assist in accomplishing the ANC mission?	1	2	3	4	5	6	7
21. What child care issues impact on accomplishing the daily military mission and obligations in the AMEDD?	1	2	3	4	5	6	7
22. What is the cost of both inpatient and outpatient nursing services in the military?	1	2	3	4	5	6	7
23. As the military adopts Diagnosis Related Groups (DRGs), what are the effects on care?	1	2	3	4	5	6	7
24. How will budget reductions affect the quality of care as well as who will receive care?	1	2	3	4	5	6	7
25. What is the impact of contract nursing staff on standards of care, morale, staffing ratios, and changes in schedules of other staff?	1	2	3	4	5	6	7
26. Compare and contrast priorities as identified by clinical nurses with those identified by nurse administrators.	1	2	3	4	5	6	7
27. What are the advantages and disadvantages of standardization among Medical Treatment Facilities (MTFs) in regard to standards of care, quality assurance, risk management, infection control, inservice manuals, and skill/ knowledge verification?	1	2	3	4	5	6	7
28. What are the best measures of the effectiveness of nursing interventions on patient outcomes?	1	2	3	4	5	6	7
29. What is the relationship between nursing standards of care and patient outcomes?	1	2	3	4	5	6	7

PLEASE TURN TO THE LAST PAGE

	IMPORTANCE Low High
30. Are pediatric critical care standards achieved when pediatric patients receive care in adult critical care units?	1 2 3 4 5 6 7
31. What factors influence repeat admissions and can these factors be influenced by nursing intervention?	1 2 3 4 5 6 7
32. What self-care or family-care functions could be instituted to decrease nursing care time?	1 2 3 4 5 6 7
33. Compare and contrast case management with current practice models.	1 2 3 4 5 6 7
34. Evaluate telephone counseling and triage in terms of cost effectiveness, efficacy and legal issues.	1 2 3 4 5 6 7
35. What are valid predictors of readiness for the ANC?	1 2 3 4 5 6 7
36. What is the relationship between ANC officers' family responsibilities and readiness?	1 2 3 4 5 6 7
37. What is the best way to train ANC officers and enlisted personnel for a wartime mission while maintaining peacetime quality of care?	1 2 3 4 5 6 7
38. What are the critical factors in training Reserve Component ANC officers for mobilization?	1 2 3 4 5 6 7
39. What is the relationship between current training practices and nurses' proficiency in setting up and using combat hospital equipment?	1 2 3 4 5 6 7
40. What is the impact on the AMEDD of physical training and weight standards?	1 2 3 4 5 6 7

THANK YOU!

Please return the Round III Questionnaire no later than 15 June 1990. Your participation in this important endeavor is greatly appreciated.

DISTRIBUTION

Defense Technical Information Center, ATTN: DTIC-OCC, Cameron Station, Alexandria, VA 22304-6145 (2)
Director, Joint Medical Library, DASG-AAFJML, Offices of the Surgeons General, Army/Air Force, Rm 670, 5109 Leesburg Pike, Falls Church, VA 22041-3258 (1)
Stimson Library, Academy of Health Sciences, Bldg 2840, Fort Sam Houston, TX 78234-6100 (1)
Defense Logistics Information Exchange, U.S. Army Logistics Management College, Fort Lee, VA 23801-6043 (1)

INTENTIONALLY LEFT BLANK